

CLAIMS

What is claimed is:

1. A method for routing data packets in a network, comprising grouping routing-table entries into numbered clusters for lookup of a routing-table entry based on 5 cluster number and destination address.

2. A method as recited in claim 1, further comprising assigning a cluster number to a data packet.

3. A method as recited in claim 2, further comprising routing said data packet based on a routing-table entry selected from a group of routing-table entries based on said cluster number and a destination address associated with said data packet.

4. A method as recited in claim 3, further comprising replacing said cluster number of said data packet with a new cluster number when said packet is routed.

5. A method as recited in claim 2, further comprising matching the cluster number associated with said data packet to a corresponding cluster number associated with said routing-table entries.

6. A method as recited in claim 5, further comprising searching routing-table entries associated with said cluster number using a destination address associated with

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said data packet as an index.

7. A method as recited in claim 6, further comprising routing said data packet using a routing-table entry corresponding to said destination address.

8. A method as recited in claim 7, further comprising replacing said cluster number of said data packet with a new cluster number when said packet is routed.

9. A method as recited in claim 1, further comprising assigning a Cluster Number (Incoming) and a Cluster Number (Outgoing) to each routing table entry.

10. A method as recited in claim 9, further comprising assigning a Cluster Number (Incoming) to said data packet.

11. A method as recited in claim 10, further comprising routing said data packet based on a routing-table entry selected from a group of routing-table entries corresponding based on said Cluster Number (Incoming) and a destination address associated with said data packet.

20 12. A method as recited in claim 11, further comprising replacing said Cluster Number (Incoming) of said data packet with the Cluster Number (Outgoing) associated with said selected routing-table entry when said data packet is routed.

13. A method as recited in claim 9, further comprising matching the Cluster Number (Incoming) associated with said data packet to a corresponding Cluster Number (Incoming) associated with said routing-table entries.

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14. A method as recited in claim 13, further comprising searching routing-table entries associated with said Cluster Number (Incoming) using a destination address associated with said data packet as an index.

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15. A method as recited in claim 14, further comprising routing said data packet using a routing-table entry corresponding to said destination address.

16. A method as recited in claim 15, further comprising replacing said Cluster Number (Incoming) of said data packet with the Cluster Number (Outgoing) associated with said corresponding routing-table entry when said data packet is routed.

17. A method for routing data packets in a network, comprising:

grouping routing-table entries into numbered clusters for lookup of a routing-table entry based on cluster number and destination address; and

20 routing a data packet based on a routing-table entry selected from a group of routing-table entries based on a cluster number and a destination address associated with said data packet.

18. A method as recited in claim 17, further comprising replacing said cluster number of said data packet with a new cluster number when said packet is routed.

19. A method as recited in claim 17, further comprising matching the cluster 5 number associated with said data packet to a corresponding cluster number associated with said routing-table entries.

20. A method as recited in claim 19, further comprising searching routing-table entries associated with said cluster number using a destination address associated with 10 said data packet as an index.

21. A method as recited in claim 20, further comprising routing said data 15 packet using a routing-table entry corresponding to said destination address.

22. A method as recited in claim 21, further comprising replacing said cluster number of said data packet with a new cluster number when said packet is routed.

23. A method as recited in claim 17, further comprising assigning a Cluster 20 Number (Incoming) and a Cluster Number (Outgoing) to each routing table entry.

24. A method as recited in claim 23, further comprising assigning a Cluster Number (Incoming) to said data packet.

25. A method as recited in claim 24, further comprising routing said data packet based on a routing-table entry selected from a group of routing-table entries corresponding based on said Cluster Number (Incoming) and a destination address
5 associated with said data packet.

26. A method as recited in claim 25, further comprising replacing said Cluster Number (Incoming) of said data packet with the Cluster Number (Outgoing) associated with said selected routing-table entry when said data packet is routed.

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27. A method as recited in claim 23, further comprising matching the Cluster Number (Incoming) associated with said data packet to a corresponding Cluster Number (Incoming) associated with said routing-table entries.

28. A method as recited in claim 27, further comprising searching routing-table entries associated with said Cluster Number (Incoming) using a destination address associated with said data packet as an index.

29. A method as recited in claim 28, further comprising routing said data packet using a routing-table entry corresponding to said destination address.
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30. A method as recited in claim 29, further comprising replacing said Cluster Number (Incoming) of said data packet with the Cluster Number (Outgoing) associated with said corresponding routing-table entry when said data packet is routed.

5 31. A method for routing data packets in a network, comprising:
grouping routing-table entries into numbered clusters for lookup of a routing-table entry based on cluster number and destination address;
matching a cluster number associated with a data packet to a corresponding cluster number associated with said routing-table entries; and
100 routing said data packet based on a routing-table entry selected from a group of routing-table entries based on the cluster number and the destination address associated with said data packet.

154 32. A method as recited in claim 31, further comprising replacing said cluster number of said data packet with a new cluster number when said packet is routed.

33. A method as recited in claim 31, further comprising searching routing-table entries associated with said cluster number using a destination address associated with said data packet as an index.

34. A method for routing data packets in a network, comprising:
grouping routing-table entries into clusters;
assigning a Cluster Number (Incoming) and a Cluster Number (Outgoing) to each
routing table entry;

5 assigning a Cluster Number (Incoming) to a data packet;
matching the Cluster Number (Incoming) associated with said data packet to a
corresponding Cluster Number (Incoming) associated with said routing-table entries;
searching routing-table entries associated with said Cluster Number (Incoming)
of said data packet using a destination address associated with said data packet as an
index; and

10 routing said data packet based on a routing-table entry corresponding to the
destination address associated with said data packet.

15 35. A method as recited in claim 34, further comprising replacing said Cluster
Number (Incoming) of said data packet with the Cluster Number (Outgoing) associated
with said selected routing-table entry when said data packet is routed.

20 36. A method for routing data packets in a network, comprising:
grouping routing-table entries into clusters;
assigning a Cluster Number (Incoming) and a Cluster Number (Outgoing) to each
routing table entry;
assigning a Cluster Number (Incoming) to a data packet;

matching the Cluster Number (Incoming) associated with said data packet to a corresponding Cluster Number (Incoming) associated with said routing-table entries; searching routing-table entries associated with said Cluster Number (Incoming) of said data packet using a destination address associated with said data packet as an index; routing said data packet based on a routing-table entry corresponding to the destination address associated with said data packet; and replacing said Cluster Number (Incoming) of said data packet with the Cluster Number (Outgoing) associated with said selected routing-table entry when said data packet is routed.